AD-A285 064

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

DIST D

①

FINAL   15 Mar 92 TO 14 Mar 94

VISUAL NEURAL DEVELOPMENT AND CHROMATIC ABERRATION

F49620-92-J-0187

61102F

2313/AS

Dr Laurence T. Maloney

Dept of Psychology
New York University
Center for Neural Science
6 Washington Place, 8th Floor
New York, NY   10003

AFOSR-TR· 94 0562

AFOSR/NL
110 Duncan Ave Suite B115
Bolling AFB DC   20332-0001

DTIC
ELECTE
SEP 2 9 1994
S G D

Dr John F. Tangney

A

The purpose of the research undertaken was to develop computational techniques
and psychophysical methods for investigating the internal representation of
visual information (shape, depth and color) in human observers. Some of the
equipment needed was not available in Summer 1992. A no-cost one-year
extension was requested and granted, and work on the project continued through
March 1994. The following is a list of publications and presentations supported
in whole or in part by the grant. A list of personnel is also included. One
series of experiments (concerning non-Gaussian signal detection theory) is not
yet completed. It will be prepared for publicaiton with proper acknowledgement
of support from AFOSR

14 SUBJECT TERMS

17 SECURITY CLASSIFICATION OF REPORT	18 SECURITY CLASSIFICATION OF THIS PAGE	19 SECURITY CLASSIFICATION OF ABSTRACT	20 LIMITATION OF ABSTRACT
(U)	(U)	(U)	(U)

NSN 7540-01-280-5500

DTIC QUALITY INSPECTED 3

GENERAL INSTRUCTIONS FOR COMPLETING SF 298

The Report Documentation Page (RDP) is used in announcing and cataloging reports. It is important that this information be consistent with the rest of the report, particularly the cover and title page. Instructions for filling in each block of the form follow. It is important to **stay within the lines to meet optical scanning requirements.**

Block 1. Agency Use Only (Leave Blank)

Block 2. Report Date. Full publication date including day, month, and year, if available (e.g. 1 Jan 88). Must cite at least the year.

Block 3. Type of Report and Dates Covered. State whether report is interim, final, etc. If applicable, enter inclusive report dates (e.g. 10 Jun 87 - 30 Jun 88).

Block 4. Title and Subtitle. A title is taken from the part of the report that provides the most meaningful and complete information. When a report is prepared in more than one volume, repeat the primary title, add volume number, and include subtitle for the specific volume. On classified documents enter the title classification in parentheses.

Block 5. Funding Numbers. To include contract and grant numbers; may include program element number(s), project number(s), task number(s), and work unit number(s). Use the following labels:

C	- Contract	PR	- Project
G	- Grant	TA	- Task
PE	- Program Element	WU	- Work Unit Accession No.

Block 6. Author(s). Name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. If editor or compiler, this should follow the name(s).

Block 7. Performing Organization Name(s) and Address(es). Self-explanatory.

Block 8. Performing Organization Report Number. Enter the unique alphanumeric report number(s) assigned by the organization performing the report.

Block 9. Sponsoring/Monitoring Agency Names(s) and Address(es). Self-explanatory.

Block 10. Sponsoring/Monitoring Agency. Report Number. (If known)

Block 11. Supplementary Notes. Enter information not included elsewhere such as: Prepared in cooperation with...; Trans. of ..., To be published in .... When a report is revised, include a statement whether the new report supersedes or supplements the older report.

Block 12a. Distribution/Availablity Statement. Denote public availability or limitation. Cite any availability to the public. Enter additional limitations or special markings in all capitals (e.g. NOFORN, REL, ITAR)

DOD	-	See DoDD 5230.24, "Distribution Statements on Technical Documents."
DOE	-	See authorities
NASA	-	See Handbook NHB 2200.2.
NTIS	-	Leave blank.

Block 12b. Distribution Code.

DOD	-	DOD - Leave blank
DOE	-	DOE - Enter DOE distribution categories from the Standard Distribution for Unclassified Scientific and Technical Reports
NASA	-	NASA - Leave blank
NTIS	-	NTIS - Leave blank.

Block 13. Abstract. Include a brief (Maximum 200 words) factual summary of the most significant information contained in the report.

Block 14. Subject Terms. Keywords or phrases identifying major subjects in the report.

Block 15. Number of Pages. Enter the total number of pages.

Block 16. Price Code. Enter appropriate price code (NTIS only).

Blocks 17. - 19. Security Classifications. Self-explanatory. Enter U.S. Security Classification in accordance with U.S. Security Regulations (i.e., UNCLASSIFIED). If form contains classified information, stamp classification on the top and bottom of the page.

Block 20. Limitation of Abstract. This block must be completed to assign a limitation to the abstract. Enter either UL (unlimited) or SAR (same as report). An entry in this block is necessary if the abstract is to be limited. If blank, the abstract is assumed to be unlimited.

FINAL REPORT

Laurence T. Maloney, PI
E-mail: ltm@cns.nyu.edu

The purpose of the research undertaken was to develop computational techniques and psychophysical methods for investigating the internal representation of visual information (shape, depth and color) in human observers. Some of the equipment needed was not available in Summer 1992. A no-cost one-year extension was requested and granted, and work on the project continued through March 1994. The following is a list of publications and presentations supported in whole or in part by the grant. A list of personnel is also included. One series of experiments (concerning non-Gaussian signal detection theory) is not yet completed. It will be prepared for publication with proper acknowledgement of support from AFOSR.

A. PUBLICATIONS IN REFEREED JOURNALS (acknowledging the grant)

Chan, A. S., Paulsen, J. S., Salmon, D. P., Butters, N., and Maloney, L. T. (1993), Assessment of the semantic network in Alzheimer's disease patients. *Journal of Cognitive Neuroscience*, in press.

Young, M., Landy, M. S., & Maloney, L. T. (1993), A perturbation analysis of depth perception from combinations of texture and motion cues. *Vision Research*, 11, 2685-2696.

Landy, M. S., Maloney, L. T., Johnston, E. B., & Young, M. (1994), In defense of weak fusion: Measurement and modeling of depth cue combination. Mathematical Studies in Perception and Cognition 91-3. New York: New York University. *Vision Research: in press, July 1994*.

Wuerger, S. M., Maloney, L. T., & Krauskopf, J. (1994), Proximity judgments in color space: tests of a Euclidean color geometry. Mathematical Studies in Perception and Cognition 93-1. *Vision Research: Under review, May 1994.*.

Knoblauch, K. & Maloney, L. T. (1994), Tests of the indeterminacy of chromatic mechanisms from chromatic discrimination data. Mathematical Studies in Perception and Cognition 94-1. *Vision Research: Under review, May 1994.*.

Maloney, L. T. & Mayans, R. A. (1994), Retinal sampling and surface reconstruction. *In preparation*.

Maloney, L. T., Landy, M. S., & Ferraro, M. (1994), Representation and action: Decision making in perception and cognition. *In preparation*.

Books acknowledging the grant.

94 9 28 064

Landy, M. S., Pavel, M., and Maloney, L. T. [Eds] (1994), *Exploratory Vision: The Active Eye.* New York: Springer-Verlag, *first round drafts by July 15, 1994*

Maloney, L. T. (1995), *Mathematical and Statistical Methods for Visual Neuroscience. In preparation.*

B. BOOK CHAPTERS (acknowledging the grant)

Maloney, L. T. (1992), Color constancy and color perception: the linear models framework. In Meyer, D. E., and Kornblum, S. [Eds.], *Attention & Performance XIV: Synergies in Experimental Psychology, Artificial* Intelligence, and Cognitive Neuroscience – A Silver Jubilee. (Cambridge, Massachusetts: MIT Press).

Maloney, L. T., Wuerger, S. M., & Krauskopf, J. (1994), A method for testing Euclidean representations of proximity judgments in linear psychological spaces. In Luce, R. D., D'Zmura, M. Hoffman, D., Iverson, G., & Romney, A. K. [Eds], *Geometric Representations of Perceptual Phenomena: Papers in Honor of Tarow Indow's 70th Birthday.* (Hillsdale, NJ: Lawrence Erlbaum). *in press.*

Maloney, L. T. (1994), Exploratory vision: Implications for sampling, reconstruction, and calibration. In Landy, M. S., Pavel, M., and Maloney, L. T. *Exploratory Vision: The Active Eye.* New York: Springer-Verlag, *in preparation*

C. GRADUATE STUDENTS (working on projects related to the grant)

Hon, Alex, Psychology, PhD, US

D. POST-DOCTORATES

Poirson, Allen, Center for Neural Science, PhD Stanford 1991, USA

E. AWARDS

Golden Dozen Award, New York University, 1994.